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Optical band gap and carbon clusters in pmma nanocomposite films formed by ion implantation: Boron, helium, and xenon ions

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Abstract

© 2018, Springer Science+Business Media B.V., part of Springer Nature. The optical band gap and carbon clusters behavior as a function of ion dose are examined for 40Â keV boron, helium, and xenon ion-implanted polymethylmethacrylate (PMMA) at the same ion doses of 3.13 × 1015, 6.25 × 1015, 1.25 × 1016, and 2.5 × 1016 ions/cm2. The values of Egopt and Nion are compared and analyzed. The effect of the ion mass on the carbonization processes in PMMA nanocomposite films formed by implantation of these ions as revealed from optical absorption measurements is considered.

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Keywords

Carbon clusters, Ion implantation, Optical band gap, PMMA

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